**Programming Assignment**

1. What data structure(s) could you store this data in? What are the benefits of storing in each of the data structures you can think of?

* This data can be stored in csv file which we can import in SQL database.

2. Write a program/function to find the country/region with the highest and lowest population in a given year. Take the year as input from the user or from the command line.

* Highest Population:

create procedure [dbo].SPPData

@year varchar(10),

@Order varchar(10) as

begin

declare @sql varchar(8000)

--SELECT top 1 "Country Name", "C1960" AS HighestPopulation FROM [dbo].[PopulationData] order by "C1960" desc;

set @sql='Select top 1 "Country Name", '+ @year +' AS HighestPopulation from [dbo].[PopulationData] order by ' +@year + ' ' + @Order

exec(@sql);

end;

--exec [dbo].SPPData @Year = "C1960", @Order = "desc"

-> Lowest Population:

create procedure [dbo].SPPData

@year varchar(10),

@Order varchar(10) as

begin

declare @sql varchar(8000)

--SELECT top 1 "Country Name", "C1960" AS LowestPopulation FROM [dbo].[PopulationData] order by "C1960" asc;

set @sql='Select top 1 "Country Name", '+ @year +' AS LowestPopulation from [dbo].[PopulationData] order by ' +@year + ' ' + @Order

exec(@sql);

end;

--exec [dbo].SPPData @Year = "C1960", @Order = "asc"

3. Write a program/function to find the country/region with the highest and lowest population growth percentage from 1960 to 2020.

Formula: 100 \* (2020 population - 1960 population) / 1960 population

4. Modify the above program/function to take the starting and ending years as inputs from the user or from the command line.

* alter procedure [dbo].SP\_Q3

@StartYear varchar(10) ,

@EndYear varchar(10) ,

@Order varchar(10) as

begin

declare @sql varchar(8000);

--select top 1 "Country Name" , (CAST([PopulationData].[C2020] AS float) - CAST([PopulationData].[C1960] AS float)) / CAST([PopulationData].[C1960] AS float) \* 100 as diff FROM [dbo].[PopulationData] order by diff desc;

set @sql='select top 1 "Country Name" , (CAST([PopulationData].['+@EndYear+'] AS float) - CAST([PopulationData].['+@StartYear+'] AS float)) / CAST([PopulationData].['+@StartYear+'] AS float) \* 100 as diff FROM [dbo].[PopulationData] order by diff ' + @Order;

exec(@sql);

end

-- exec [dbo].SP\_Q3 @StartYear = "C1960", @EndYear = "C2020", @Order ="asc"